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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/979,593	11/14/2001	Anne Chew	MWH-0425US	3283

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GENAISSANCE PHARMACEUTICALS
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EXAMINER	
WOITACH, JOSEPH T	
ART UNIT	**PAPER NUMBER**
1632	

DATE MAILED: 02/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/979,593	CHEW ET AL.	
	Examiner	Art Unit	
	Joseph T. Woitach	1632	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31 and 33* is/are pending in the application.

4a) Of the above claim(s) *1-20,23,24 and 27-31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21,22,25,26 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

This application is a 371 national stage filing of PCT/US01/14714 filed May 7, 2001 which claims benefit to provisional application 60/201,946, filed May 5, 2000.

Applicants' amendment filed November 3, 2003, has been received and entered. Claim 32 has been canceled. Claim 21, 26, 29 and 33 have been amended. Claims 1-31 and 33 are pending.

Election/Restrictions

Upon review of the election, certain errors in the claims discussed by Applicants were recognized by the Examiner, in particular that arguments and claim numbering appeared to be directed to group IV, not group V as indicated by Applicants. Ms. Shaner was contacted regarding the inconsistencies and indicated that Group IV, claims 21, 22, 25 and 26, was meant to be elected, and the traverse was still to rejoin group IV with group X.

Applicant's election with traverse of group IV is acknowledged. The traversal is on the ground(s) that the anthology of group X would contain the sequences of group IV, and thus the two groups would have unity of invention. This is found persuasive in part because while it is maintained that the two groups are directed to distinct products, in light of the amendments to the claims it appears that the search for both groups will be similar and thus not constitute an undue burden. Groups IV and X will be rejoined. Applicants do not provide arguments in traverse the

restriction requirement over the other groups, therefore, the restriction requirement over these groups is maintained for the reasons of record.

The requirement is still deemed proper and is therefore made FINAL.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer and inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(h).

Claims 1-31 and 33 are pending. Claims 1-20, 23, 24, 27-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement. Claims 21, 22, 25, 26, and 33 are currently under examination.

Claim Objections

Claims 21, 26, and 33 are objected to because of the following informalities: each of the claims make reference to sequences in a Table. The sequences in the tables are pertinent to the claimed invention and can be presented in the claims. Accordingly, the claims should be amended to more clearly set forth the sequences in the tables.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 21, 22, 25, 26, and 33 are rejected under 35 U.S.C. 101 because the claimed invention lacks patentable utility.

The present specification teaches that polymorphisms can be used to generate targets of pharmaceutically important proteins. The disclosure provides an analysis of ICAM2 setting forth multiple polymorphism sties identified in one or both copies of the ICAM2 gene. While the specification asserts the existence of the polymorphisms, the prevalence in any population of any of the specific polymorphisms is not determined. Further, the specification proposes using the described polymorphisms to define an association with any given trait, such as a disease or susceptibility to a disease in any given population (starting at page 19). However, the specification does not disclose if such a relationship exists with any trait in any population.

According to MPEP § 2107, a rejection for lack of utility is imposed when an invention lacks an asserted specific and substantial utility for the claimed invention and it does not have a readily apparent well-established utility. An invention has a well-established utility if (i) a person of ordinary skill in the art would immediately appreciate why the invention is useful based on the characteristics of the invention (e.g., properties or applications of a product or process), and (ii) the utility is specific, substantial, and credible.

It may be argued that the nucleic acid of the instant claims can be used in diagnostic assays for polymorphisms, which is a real world utility. This asserted utility is credible but not specific or substantial. The specification discloses a number of polymorphisms present in the

ICAM2 gene (see Tables listing polymorphisms). However, the specification does not disclose the nexus between any of these polymorphisms and any function of an expressed polypeptide. Additionally, there is no correlation disclosed between the presence of any of these polymorphisms and the effect of the presence of any of these polymorphisms on the risk of any disease or condition, therefore this asserted utility is not specific. Significant further experimentation would be required of the skilled artisan to identify individuals with a disease or disorder which correlates to the presence of one of the enumerated polymorphisms, therefore, since this asserted utility is not present in mature form, so that it could be readily used in a real world sense, the asserted utility is not substantial. It could be argued that the use of these polymorphisms in forensic analysis is a real world utility. However, the asserted utility of using the polynucleotides in forensic analysis is not specific. Such assays can be performed with any polynucleotide. The use of the claimed nucleic acid in forensic analysis is not particular to the sequence being claimed because it would be applicable to the general class of nucleic acids, because no correlation has been shown to the polymorphisms disclosed in the ICAM2 gene, and any state or condition. The fact that polymorphisms exist in this gene and could be used for forensic analysis is not a specific utility for this gene, since polymorphisms exist in many genes, and could be use for forensic analysis. The specificity of the utility would arise upon the showing of a correlation of the polymorphism with a diseased state or condition for which it would be useful to identify a population. It may be argued that the sequences could be used to distinguish individual members of the human population from one another based simply on the presence or absence of one of the described polymorphisms. However, the use of the claimed polynucleotides in a method of forensic analysis is not a specific utility because there is no

correlation between the presence of any of the polymorphisms and any state or condition, and there is no correlation disclosed between the presence of any of these polymorphisms and the effect of the presence of any of these polymorphisms on the risk of any disease or disorder, therefore this asserted utility is not specific or substantial. Additionally, the specification does not set forth the frequency with which these polymorphisms occur in the general population, thus the utility of the nucleic acid for forensic analysis is not complete since additional experimentation would be required. Such a utility is considered a research utility only designed to identify a particular function of the claimed sequences and is not a substantial utility. See, e.g., *Brenner v. Manson,* 383 U.S. 519, 148 USPQ 689 (Sup. Ct. 1966) wherein a research utility was not considered a "substantial utility." The nucleic acids of the instant claims are not being claimed as pharmaceuticals, and the nucleic acid is not a lead compound which must be further refined through further experimentation. Appellant is arguing that the nucleic acid is useful in a method of forensic analysis, while the Specification does not set forth the frequency with which these polymorphisms occur in the general population, and what populations they would be able to distinguish. In the instant case considerable further research would be required to determine a specific and substantial utility for the claimed polynucleotide by correlating the polymorphisms to a disease state or other condition which it would be useful to classify a population.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to

which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 21, 22, 25, 26, and 33 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Enablement is considered in view of the Wands factors (MPEP 2164.01(a)). The court in Wands states: "Enablement is not precluded by the necessity for some experimentation such as routine screening. However, experimentation needed to practice the invention must not be undue experimentation. The key word is 'undue,' not 'experimentation.' " (*Wands*, 8 USPQ2d 1404). Clearly, enablement of a claimed invention cannot be predicated on the basis of quantity of experimentation required to make or use the invention. "Whether undue experimentation is needed is not a single, simple factual determination, but rather is a conclusion reached by weighing many factual considerations." (*Wands*, 8 USPQ2d 1404). The factors to be considered in determining whether undue experimentation is required include: (1) the quantity of experimentation necessary, (2) the amount or direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims. While all of these factors are considered, a sufficient amount for a *prima facie* case are discussed below.

As set forth above in the basis of the utility rejection, the specification fails to provide any clear nexus between any of the described polymorphisms and real world use beyond further research to determine the potential usefulness of any of the polymorphisms. The art recognizes

the importance of ICAM molecules (see for example Heiska *et al.* JBC, 1996). However, a review of the art of record fails to identify any specific trait or disease with alterations of the ICAM2 gene or any of the members of the ICAM family. Simply providing the polymorphisms as disclosed in the instant application fails to provide the necessary guidance on how to use these polymorphisms. The courts have stated that:

> a specification need not disclose what is well known in the art. See, e.g., Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1385, 231 USPQ 81, 94 (Fed. Cir. 1986). However, that general, oft-repeated statement is merely a rule of supplementation, not a substitute for a basic enabling disclosure. It means that the omission of minor details does not cause a specification to fail to meet the enablement requirement. However, **when there is no disclosure** of any specific starting material **or of any of the conditions under which a process can be carried out, undue experimentation is required; there is a failure to meet the enablement requirement that cannot be rectified by asserting that all the disclosure related to the process is within the skill of the art**. It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement.

Genentech Inc. v. Novo Nordisk A/S, 42 USPQ2d 1005 (CAFC 1997) (**emphasis added**). The methodology to establish an association with a gene and an observable trait are known in the art. In this case only the materials to determine a potential importance are provide, however there is no teaching of record that the use of these materials, *i.e.* the polymorphisms, with methods known in the art will result in any of the sequences demonstrating any importance or association with any useable trait.

In view of the lack of guidance, working examples, breadth of the claims, the level of skill in the art and state of the art at the time of the claimed invention was made, it would have required undue experimentation to make and/or use the invention as claimed.

Conclusion

No claim is allowed. The clams are free of the art of record, however they are subject to other rejections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Woitach whose telephone number is (703)305-3732. After January 12, 2004, the Examiner's telephone number will be (571) 272-0739.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Reynolds, can be reached at (703) 305-4051. After January 12, 2004, Deborah Reynolds telephone number will be (571)272-0734.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group analyst Dianiece Jacobs whose telephone number is (703) 308-2141. After January 14, 2004, Dianiece Jacobs telephone number will be (571)272-0532.

Joseph T. Woitach